VERMONT AGENCY OF NATURAL RESOURCES

Department of Environmental Conservation

Procedure on ANR Floodway Determinations in Act 250 Proceedings

I. Purpose

The purpose of this Procedure is to provide the regulated community, Act 250 District Environmental Commissions, the Environmental Board, and the public-at-large with clear guidance on how the Agency of Natural Resources (Agency or ANR) will make determinations of what constitutes a "floodway" and "floodway fringe" as applied in the review of Act 250 permit applications under Criterion 1(D).

This Procedure memorializes the Agency's current practice concerning floodway determinations. The Procedure may be amended by the agency in the future on its own motion or based upon input received from members of the public, municipalities and other governmental entities, and other affected persons.

II. Statutory Authority

Criterion 1(D) of Act 250 provides that:

> A permit will be granted whenever it is demonstrated by the applicant that, in addition to all other applicable criteria: (i) the development or subdivision of lands within a floodway will not restrict or divert the flow of flood waters, and endanger the health, safety, and welfare of the public or of riparian owners during flooding; and (ii) the development or subdivision of lands within a floodway fringe will not significantly increase the peak discharge of the river or stream within or downstream from the area of development and endanger the health, safety, or welfare of the public or riparian owners during flooding. 10 V.S.A. § 6086(1)(D).

The terms "floodway" and "floodway fringe", as used in Criterion 1(D), are defined as:

> "Floodway" means the channel of a watercourse which is expected to flood on an average of at least once every 100 years and the adjacent land areas which are required to carry and discharge the flood of the watercourse, as determined by the secretary of natural resources with full consideration given to upstream impoundments and flood control projects.
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> "Floodway fringe" means an area which is outside a floodway and is flooded with an average frequency of once or more in each 100 years as determined by the secretary of natural resources with full consideration given to upstream impoundments and flood control projects. 10 V.S.A. § 6001(6), (7)

The Act 250 law thus places the responsibility with the Secretary of ANR[1] to make case-by-case determinations on what constitutes the floodway and floodway fringe. The Environmental Board has held that under Act 250, the Secretary's floodway determination "does not provide the Board with discretion to review that determination on its merits." Rather, once the floodway delineations have been made, the Board's analysis under Criterion 1(D)(i) and (ii) is focused on whether a project will restrict or divert the flow of flood waters and/or whether it will significantly increase the peak discharge of the river or stream within or downstream from the area of development, and endanger public health, safety, or welfare. *Re: Woodford Packers, Inc., d/b/a WPI*, #8B0542-EB, Findings of Fact, Conclusions of Law, and Order at 22 (October 5, 2001)

Criterion 1(D) is the only Act 250 provision that grants the Agency, and not the District Commissions or the Environmental Board, with the authority and obligation to make a substantive determination that bears on compliance with an Act 250 criterion. While other Act 250 criteria rely on ANR determinations made through its own permit processes (e.g., Criterion 1 – air permits; Criterion 1(B) – wastewater discharge permits), these ANR permits merely establish a rebuttable presumption that an Act 250 applicant has complied with certain Act 250 criteria.

III. Agency Past Practice on Floodway Determinations

Since the inception of Act 250, the Agency has typically utilized the delineation of floodway limits provided by Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) maps as the basis for its determination of the floodway under Criterion 1(D). Within the limits of the NFIP floodway determination methodology and scope of the program, the NFIP has been a valuable tool to avoid building development in areas or at elevations prone to inundation from floodwaters.

At the same time, there has been a growing awareness within the Agency regarding the deficiencies of FEMA floodway delineations to adequately protect development from flood damage and fluvial (riverine) erosion hazards. Over the past several years, Agency technical and resource management staff have gained a greatly enhanced understanding of fluvial processes, the integral connection between channel and flood plain, and the historic, contemporary, and future anthropogenic influences on the stability, physical adjustment process and sensitivity of Vermont's rivers and streams as these issues relate to the "health, safety and welfare of the public or of riparian owners during flooding." (Criterion 1(D)(i)).

In the years 1995 through 1998, Vermont experienced five major flood disaster events that resulted in nearly $60 million in damages to public and private infrastructure and property. (Options for State Flood Control Policies and a Flood Control Program, VT DEC, 1999). An estimated 75% or more of this damage is associated with the dynamic physical response of stream channels during flood events resulting in catastrophic adjustments of channel

[1] The Secretary has delegated this authority to the Commissioner of the Department of Environmental Conservation.

dimensions, slope, and location. As explained below (Technical Rationale), NFIP maps are not intended nor designed to address the hazards associated with the physical response mechanisms of fluvial systems.

Vermont's public transportation infrastructure, agricultural lands, and many homes and businesses exist in close proximity to waterways. To remain economically and functionally viable, these myriad public and private investments on the landscape are dependent upon the long term stability of fluvial systems. Minor changes in river dimensions, slope, or location can have profound effects on the safety and functional viability of roadways, stream crossing structures, buildings and land use.

The stability, or dynamic equilibrium of fluvial systems is often physically expressed through adjustment of location, or plan form. For this reason, it is vitally important to ensure new land uses in riparian corridors accommodate and are compatible with fluvial adjustment processes.

IV. Technical Rationale

FEMA's floodway delineation is an inundation based methodology that relies strictly on hydraulic calculations that plot a water surface elevation associated with a design frequency storm event. The limits of this methodology center on its inability to assign any consideration for the dynamic changes of channel configuration or location, due to physical channel adjustment processes. For this reason, the FEMA floodway limits do not adequately protect existing or proposed development within riparian corridors from fluvial erosion hazards. Erosion hazards are the type most responsible for economic loss and threats to public health and safety in Vermont.

Through application of fluvial geomorphology (a science which seeks to explain the physics of flowing water and sediment in varying land forms), the condition of stability and adjustment processes can be described for any discrete stream reach. This information can then be used to determine floodway limits that will help maintain the stability of the fluvial system and allow adjustment processes to proceed without undue constraints from anthropogenic influences, thereby protecting human land uses and public safety from endangerment by flooding and erosion.

Floodway limits necessary to avoid fluvial erosion hazards that endanger the public health, safety and welfare may at times exceed the floodway areas designated by NFIP. This is particularly true where geomorphic assessments indicate stream reaches are undergoing physical adjustments.

V. Criterion 1(D) Floodway Determinations

For the purpose of determining the floodway under 10 V.S.A. Section 6001(6), and the impacts of a project built in a floodway under Criterion 1(D), Agency technical staff will

consider both inundation hazards as defined by FEMA and fluvial erosion hazards based on principles of fluvial geomorphology. Such consideration may include the watershed inputs, the history and projection of channel, flood plain and watershed perturbations, characterization of the physical location, attributes and condition of the stream reach involved, the stage of adjustment process, the condition of sediment transport continuity or discontinuity, and the physical constraints influencing fluvial processes.

Determination of floodway limits by the Secretary is intended to ensure that the proposed development will not restrict or divert the flow of flood waters, and endanger the health, safety and welfare of the public or of riparian owners during flood.

VI. Technical Guidance

A technical guidance document (Technical Guidance for Determination of Floodway Limits Pursuant to Act 250 Criterion 1(D)) has been prepared by the agency for use by Act 250 permit applicants in the delineation of floodway limits pursuant to this procedure. This technical analysis is based on assessment protocols for fluvial erosion hazard potential contained within the Phase I-III Vermont Stream Geomorphic Assessment Handbooks (VT DEC, 2002). Both the *Technical Guidance* and the *Handbooks* are available from the DEC Water Quality Division by calling 802-241-3777 or at http://www.anr.state.vt.us/dec/waterq/riversgeo.htm.

Agency technical staff will consult with and technically evaluate Act 250 permit applicants' determination of floodway limits as provided under Criterion 1(D).

The record of fluvial assessment data throughout Vermont watersheds is growing through the efforts of many organizations and agencies, guided by the *Handbooks*. As this record continues to grow, primarily associated with state basin planning, federally-sponsored municipal flood hazard mitigation planning, and activities of watershed-based organizations, the burden of field data collection and analysis necessary to support floodway determinations will diminish over time.

Christopher Recchia, Commissioner
Department of Environmental Conservation

February 10, 2003
Date